

## Abstract

A photocatalytic composite material having a high activity and good durability is produced by coating the surface of a substrate with a continuous film of titanium oxide by vapor deposition from titanium tetrachloride. In the case of a substrate  
5 which is a mass of inorganic fibers such as glass cloth, the individual fibers or filaments in the mass are coated with titanium oxide. The vapor deposition is performed by contacting the substrate, such as a mass of inorganic fibers, which has been heated to 100 - 300 °C, with a mixture of distilled pure titanium tetrachloride vapor and water vapor to form a film of a titanium oxide precursor on the surface of  
10 the substrate. Then, the substrate is heated at 300 - 600 °C in an oxidizing atmosphere, resulting in the formation on the substrate surface of a continuous film of a photocatalyst having a high activity and good adhesion to the substrate and comprising crystalline titanium oxide with an average crystallite diameter of 50 nm or smaller.